

Appl. No. 10/081,985  
Amdt. dated 12/08/2003  
Reply to Office action of 09/23/ 2003

REMARKS/ARGUMENTS

Reconsideration is requested of all claims rejected on the basis of 35 USC 112:

Concerning Claims 24-28 Examiner has argued that "Claims 24-28 recite product-by-process limitations that do not amount to significantly claimed structure."

Our response: Examiner's argument is accepted. Claims 24-28 have, accordingly, been canceled.

Concerning Claims 1-23 Examiner has argued that "Claims 1-23 recite a step a) of depositing "a dielectric," a step b) of exposing "the dielectric" and a last step of "repeating steps a) and b)." The repeating step, then, by antecedent basis in the claims, refers to depositing and exposing the same type of layer with the same exposure. Yet, the claims recite that layers that make up the final layer are of "different composition," which leads to confusion:

Is the final layer thickness made up of sub-layers of the same type of material having differing atomic ratios? Can any dielectric material of any type be used for each sub-layer deposited by step a), or is each layer the same material such as "oxynitride or oxycarbide"? For purposes of examination, the sub-layers may be of totally different composition."

Our response: Examiner's argument is understood. We have therefor amended step (b) in claims 1, 8, and 16, to read:

(b) then exposing said layer of dielectric material of step (a)... etc.

This makes it unambiguous that the exposure to a plasma takes place only after the entire film (of step (a)) has been laid down and that the layer referred to in step (b) is

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always the one deposited in the preceding step (a). However, since step (a) always refers to a dielectric layer it follows that the layer deposited each time step (a) is repeated need not have the same composition as the layers deposited during previous executions of step (a).

Claims 4, 9, and 17 have also been amended from "said dielectric layer" to "each of said dielectric layers" so that the final structure is limited to SiON, SiOC, or a laminate containing both.

Concerning claims 8-15 and 23 Examiner has argued that they "recite "simulating" to determine a "surface treatment." Yet, it is unclear how simulating is performed to select a "surface treatment." Known software simulations, such as PROLITH (U.S. 6,459,401, col. 4, line 27) can be used to simulate optical properties of multi-layer coatings based on composition and material thickness, yet applicant claims "simulating" to determine "a surface treatment." What is the scope of "surface treatment" contemplated? Plasma is the only treatment disclosed, but how is this treatment determined by "simulating"? In claim 10, if the surface treatment "further comprises" plasma treatment, what is the treatment in the independent claim 8?"

Our response: In regard to Examiner's question as to how simulation is performed to select a surface treatment, we note that the **effect** of a given surface treatment can be determined through simulation either by calculation (if the relevant physics is sufficiently well understood) or by use of a lookup table previously created by experiment. Either way, the program can output the optical properties that will be obtained following any of several possible surface treatments. Then, given a set of desired optical properties, the program can select the surface treatment that comes closest to achieving these and can either

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initiate the required sequence of valve openings and closings or it can communicate its selection to a human operator. Since, technically, the choice of surface treatment was not made by the actual simulation subroutine, we have amended claims 8 and 23 to read ".....through simulation determining ....., and the effects of surface treatment for each...."

Concerning claims 1-7, 10 and 16-23 Examiner has argued that these claims " recite "exposing the layer to a plasma," but it unclear that the "exposing to a plasma" is not the plasma used in a PECVD deposition of the layer (where the layer is exposed to the plasma the whole time it is formed), but rather is a distinct and separate plasma treatment of the surface of a layer completely deposited in a step a)."'

Our response: In claims 1, 8, and 16, step (a) recites the deposition of a film without specifying how the deposition is effected. So plasma CVD and sputter deposition, both of which expose the growing film to a plasma during its growth, are not ruled out. Step (b) recites the exposure to a plasma of the film formed in step (a). Neither plasma CVD nor sputter deposition could be used for the generation of this plasma because the original film formed in step (a) would immediately receive an additional coating and would not itself be exposed to the plasma.

As to claim 10, this claim has been canceled.

Reconsideration is requested of all claims rejected on the basis of 35 USC 102:

The cancellation of claims 24-28 has rendered this rejection moot.

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In consideration of the foregoing arguments, applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

GEO. O. SAILE & ASSOCIATES  
28 Davis Avenue  
Poughkeepsie  
NY 12603

By 

Stephen B. Ackerman  
Reg. No. 37761